

AMENDMENT AFTER FINAL REJECTION
EXPEDITED PROCEDURE EXAMINING GROUP 1600

BOX AF

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Hans SIGRIST et al.

Group Art Unit: 1634

Serial No.: 09/606,040

Examiner:
Arun K. Chakrabarti, Ph.D.

Filed: June 29, 2000

For: PROCESS FOR THE MODIFICATION OF SURFACES

REQUEST FOR RECONSIDERATION

Commissioner for Patents
Washington, D. C. 20231

Sir:

Applicants request reconsideration of the rejection in the Final Rejection mailed October 8, 2002 in view of the following remarks.

The ongoing withdrawal of claims 12 to 15 is acknowledged.

The rejection of claims 1 to 11 and 16 to 20 under 35 USC 103 over Miyasaka et al. '808 in view of Mazid et al. '460 is again respectfully traversed.

Applicants say that the arguments presented in the Request for Reconsideration filed September 12, 2002 are still appropriate and

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direct the Examiner's attention particularly to the remarks on pages 2 to 5 of that paper. Applicants, in addition, provide the following comments directed to certain statements appearing in the Final Rejection.

It is asserted in the first full paragraph of page 3 of the Final Rejection that Miyasaka et al. '808 teaches techniques to immobilize for the preparation of a carbohydrate on a material by photochemically fixing one or more different compounds onto the material surfaces. The Examiner refers to column 2, line 39 to column 6, line 38 and claims 1 and 2 of the patent in support of his position.

Applicants respectfully note that "carbohydrate" is nowhere mentioned in any of the sections of Miyasaka et al. '808 cited by the Examiner. Moreover, the reference discusses the immobilization of proteins (carbohydrates are not proteins) by substantially water-insoluble (carbohydrates are highly water soluble) nitrene or carbene precursors. Such precursors are not immobilized on the surface but rather are dissolved in an organic thin film before exposure to light. Those precursors have to be substantially water-insoluble to avoid diffusion out of the organic thin film layer during the protein adsorption process. These prior

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art techniques do not direct the artisan to the present invention which concerns preparing a carbohydrate substrate on a material in a particular fashion.

It is asserted also at page 3 of the Final Rejection that Miyasaka et al. '808 patent claim 13 shows a process wherein X is a disaccharide radical. Applicants respectfully say nowhere in the text or the chemical structures in claim 13 is there any indication or reference to a disaccharide. As pointed out above, Miyasaka et al. '808 indicates that the precursors must be substantially water-insoluble. Should the rejection be maintained, the Examiner is asked to state on the record how the claim 13 X radical is a disaccharide radical.

Accordingly, Miyasaka et al. '808 does not teach a process of photochemically attaching carbohydrates to organic thin film material, and as acknowledged on page 3, next to last paragraph, the reference does not teach a process of enzymatically attaching one or more carbohydrates to the modified surface. The primary reference describes a technique that is totally different from applicants' invention.

Mazid et al. '460 does not supply what is missing from the primary reference teaching. Mazid et al. '460 describes

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oligosaccharide production using enzymes, including carbohydrate modifying enzymes that are immobilized on the material surface. The technique is generally understood to be solid phase carbohydrate synthesis with immobilized enzymes. And, of course, as mentioned above, Miyasaka et al. '808 does not relate to carbohydrates or disaccharides. Thus, there is no proper reason to combine these references.

Moreover, in contrast to the techniques of the primary and secondary references, the instantly claimed process involves photochemically attaching carbohydrates carrying carbene precursor functions to material surfaces. The product of the photochemical immobilization step of the present invention is a carbohydrate-modified surface that exposes the intact carbohydrate structure to the aqueous medium. Carbohydrate-modifying enzymes can subsequently be used to modify the initiated carbohydrate chain, which can be referred to as solid phase carbohydrate synthesis with immobilized carbohydrate (enzyme) substrates.

The differences among and between the techniques of the primary and secondary references and the instantly claimed process are depicted in the enclosed sheet. The Examiner is asked to take same into consideration when evaluating the instant response. As

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explained above, the technologies of the primary and secondary references are dissimilar and there is no proper reason to combine them for any purpose and especially not for a teaching or suggestion of the present invention. The rejection should be withdrawn.

In view of the foregoing remarks, it is respectfully submitted that claims 1 to 11 and 16 to 20 patentably distinguish over the prior art and a USPTO paper so acknowledging is earnestly solicited.

If the Examiner maintains the rejection, he is asked to indicate on the record how the references teach the techniques of the claimed invention. If the only barrier to allowance is the presence of non-elected claims 12 to 15, the Examiner is authorized to cancel those claims for that express purpose.

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The Examiner is asked to contact the undersigned should any other changes be needed.

Respectfully submitted,

PARKHURST & WENDEL, L.L.P.



Charles A. Wendel
Registration No. 24,453

February 4, 2003
Date

CAW/ch

Enclosure:

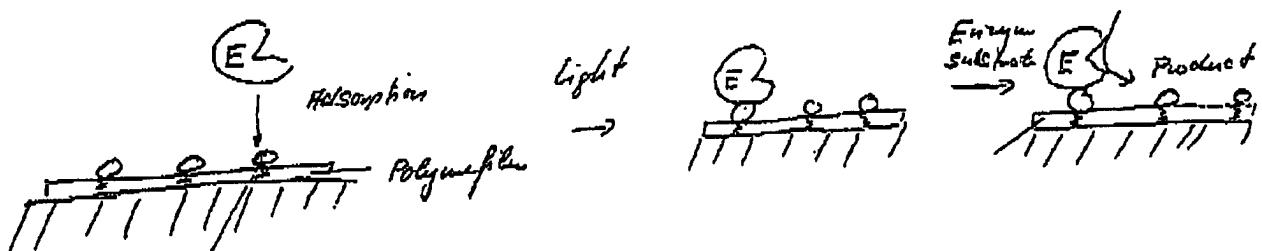
Sheet showing differences among processes
Of cited art and claimed invention

Attorney Docket No.: CSEM:060

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Jan. 24, 2003

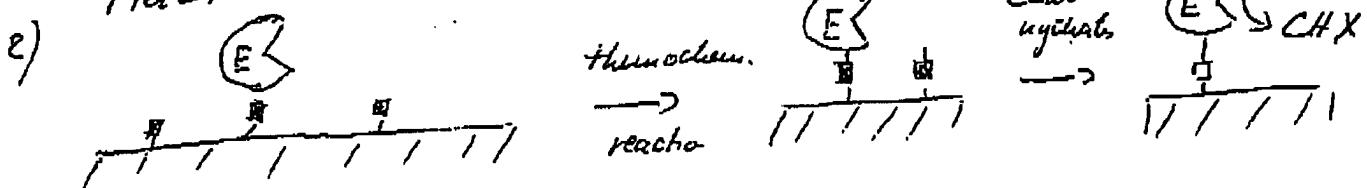
1) Miyasaka



photoactive
reagent, adsorbed to
the polymer film

E = Enzyme

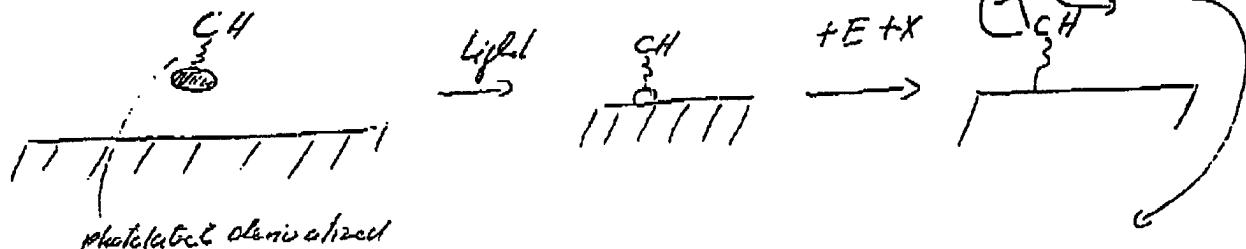
2) Mazziol



X = reactive funcn

E = Enzyme that modifies
carboxylic acids

3) CSEM



photolabile derivative

Carboxylic acids